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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,735	09/29/2006	Valerie Andre	12810-00346-US1	1588

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EXAMINER	
FRAZIER, BARBARA S	
ART UNIT	PAPER NUMBER
1611	
MAIL DATE	DELIVERY MODE
09/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,735	ANDRE ET AL.	
	Examiner	Art Unit	
	BARBARA FRAZIER	1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *3-11 and 13-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 are pending in this application.

Election/Restrictions

2. Applicant's election with traverse of Group I, claims 1, 2, and 12 in the reply filed on 1/24/08 and the traversal arguments in the reply filed on 6/11/08 are acknowledged. The traversal is on the ground(s) that Gruning suggests that homogeneous reaction products are difficult to prepare while hydrophobically modified polyaspartic esters are easy to obtain. This is not found persuasive because the polyaspartic acid derivatives taught in Gruning reasonably read on the term "polyasparaginic acid" in the claimed invention, since the derivatives are comprised of structural units (I) and (II), both of which may be derived from asparagine (see col. 2, lines 54-67 and col. 3, lines 59-60).

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 3-11 and 13-20 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1/24/08.

4. Claims 1, 2, and 12 are examined.

Claim Rejections - 35 USC § 103

5. The rejection of claims 1, 2, and 12 under 35 U.S.C. 103(a) as being unpatentable over Tanner et al (US Patent 5,827,508) in view of Stalberg et al (US 2003/0155668) and Mazo et al (US Patent 5,939,518) is withdrawn in view of Applicant's arguments, specifically that Stalberg et al teaches the use of substances which can be melted without decomposing, i.e., which have a melting point or melting range of 25 to 300 degrees C, and that the metal oxides of the claimed invention do not fall within the limitations of Stalberg et al.

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 2, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanner et al (US Patent 5,827,508) in view of Meguro et al (US Patent 4,640,943) and Mazo et al (US Patent 5,939,518).

The claimed invention is drawn to a surface-modified nanoparticulate metal oxide, wherein the surface modification comprises a coating with polyasparaginic acid with a molecular weight M_w of from 1000 to 100 000, and the metal oxide particles have an average primary particle diameter of from 5 to 10 000 nm, as taught in claim 1.

Tanner et al teach compositions having enhanced stability that are useful for protecting human skin from the harmful effects of UV radiation, comprising a surface-treated zinc oxide (see col. 2, lines 48-56). The surface-treated zinc oxides have a mean particle size preferably from about 0.01 to about 10 microns (i.e., from about 10 to about 10,000 nm), and more preferably from about 0.01 to about 2 microns (i.e., from

about 10 to about 2,000 nm) (see col. 6, lines 36-42). The surface treatment materials useful for treating the zinc oxide particles include amino acids (col. 6, lines 65-67).

Tanner et al do not specifically teach that the amino acid is polyasparaginic acid.

Meguro et al teach that surface modifiers such as polyaspartic acid are known in the art to be used for the purpose of improving the wettability and enhancing the dispersibility of inorganic fillers such as oxides of titanium, zinc, and iron (see col. 2, lines 3-6 and 17, and col. 1, lines 13-18). The metal oxides may be used in cosmetic formulations (col. 1, lines 37-39).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select the polyaspartic acid surface modifier taught by Meguro et al as the amino acid surface treatment material of Tanner et al, thus arriving at the claimed invention. One skilled in the art would have been motivated to do so because the use of polyaspartic acid as the amino acid surface modifier provides the benefits of improving the wettability and enhancing the dispersibility of the metal oxide, as taught by Meguro et al. One would reasonably expect success from the use of polyaspartic acid taught by Meguro et al with the metal oxides taught by Tanner et al because both references are drawn to the use of surface-treated metal oxides in cosmetic formulations.

Meguro et al is silent with respect to the specific molecular weight of the polyaspartic acid.

However, Mazo et al teach that polyaspartates are becoming increasingly useful as additives for cosmetics and personal care products (col. 1, lines 14-17), and having

"desired high molecular weight" (col. 1, lines 41-42), namely M_w, in the range of 10,575 – 17,231 (col. 5, lines 28 – 48).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select the molecular weight of the polyaspartic acids taught in Mazo et al for the polyaspartic acid surface modifiers of Mazo et al. One skilled in the art would have been motivated to do so because high molecular weights of polyaspartic acid are desired as dispersants and additives for cosmetics and personal care products, as taught by Mazo et al. A skilled artisan would reasonably expect success from the selection of the high molecular weight polyaspartic acids of Mazo et al for the polyaspartic acid surface modifiers of Meguro et al. because both compositions are drawn to using polyaspartic acid in cosmetics and personal care products.

With respect to claim 2, Tanner et al teach a surface-treated zinc oxide (col. 2, lines 55-56).

With respect to claim 12, Tanner et al teach that the compositions of the present invention are useful for providing protection to human skin from the harmful effects of UV radiation (col. 15, lines 34-36), and may include other cosmetic ingredients (col. 14, lines 54-62).

Response to Arguments

8. Applicant's arguments filed 6/11/08 regarding the references of Tanner et al and Mazo et al have been fully considered but they are not persuasive.

Applicants argue that Applicant's specification teaches that the surface-modified nanoparticulate metal oxides of claim 1 form stable aqueous dispersions, whereas

Tanner suggests that hydrophobic surface-treated zinc-oxide was added to the oil phase of all four disclosed examples. Applicants further argue that the particularly preferred zinc oxide suggested in Tanner is a silicone-coated hydrophobic zinc oxide, and therefore does not always have the required pH stability and that various silicone-coated metal oxides are incompatible with each other, which may lead to undesired aggregate formations.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the formation of stable aqueous dispersions) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, Tanner et al is not limited to just hydrophobic surface-treated zinc oxide, but rather teaches other surface treatments which are not hydrophobic, including amino acids. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Applicants also argue that Tanner suggests the use of un-polymerized, mono-molecular amino acids or derivatives thereof, and a person of ordinary skill in the art does not find motivation or a rationale in the disclosure of Tanner to use polymerized amino acids, let alone polyaspartic acid.

This argument is not persuasive because nowhere does Tanner teach or suggest that the amino acids are limited to un-polymerized amino acids. For this logic to be

consistent with the teachings of Tanner, the silicon-treated zinc oxide would have to be limited to elemental silicon, not dimethicone (a silicon polymer), which is taught by Tanner et al (see col. 7, lines 30-34).

Applicants also argue that Mazo relates to a method for the production of polysuccinimide by the catalytic polymerization of aspartic acid, and that Mazo fails to suggest features that can reasonably be considered to correspond to a surface-modified nanoparticulate metal oxide, as positively recited in claim 1.

This argument is not persuasive. The teachings of Mazo are not limited to polysuccinimide, but rather include polyaspartates (see col. 3, lines 8-10 and col. 1, lines 14-18). Furthermore, Mazo teaches utility of the polyaspartates as additives and dispersants for cosmetics and personal care products (col. 1, lines 14-18), which would include surface modifiers (i.e., a surface modifier acts as a dispersant).

9. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kropf et al (US 2004/0033270) in view of Mazo et al (US Patent 5,939,518).

The claimed invention is delineated above (see paragraph 7).

Kropf et al teach hygiene products produced using zinc oxide in the form of nanoparticles having surfaces that have been modified using organic compounds such as amino acids (abstracts). The particularly preferred average primary particles size of the zinc oxide nanoparticles is 5 to 20 nm, 10-25 nm or 15-35 nm (paragraph 14). The surface modifier may be polyaspartic acid (paragraph 48).

Kropf et al is silent with respect to the specific molecular weight of the polyaspartic acid.

However, Mazo et al teach that polyaspartates are becoming increasingly useful as additives for cosmetics and personal care products (col. 1, lines 14-17), and having "desired high molecular weight" (col. 1, lines 41-42), namely M_w, in the range of 10,575 – 17,231 (col. 5, lines 28 – 48).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to select the molecular weight of the polyaspartic acids taught in Mazo et al for the polyaspartic acid surface modifiers of Kropf et al. One skilled in the art would have been motivated to do so because high molecular weights of polyaspartic acid are desired as dispersants and additives for cosmetics and personal care products, as taught by Mazo et al. A skilled artisan would reasonably expect success from the selection of the high molecular weight polyaspartic acids of Mazo et al for the polyaspartic acid surface modifiers of Kropf et al because both compositions are drawn to using polyaspartic acid in cosmetics and personal care products.

Regarding claim 2, Kropf et al teach surface modified zinc oxide (see abstract).

Conclusion

10. No claim is allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA FRAZIER whose telephone number is (571)270-3496. The examiner can normally be reached on Monday-Thursday 9am-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sharmila Landau can be reached on (571)272-0614. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BSF

/Sharmila Gollamudi Landau/
Supervisory Patent Examiner, Art Unit 1611